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I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2002952205 for a patent by JASON JOHN WRIGHT MURDOCH as filed on 18 October 2002.



WITNESS my hand this  
Fourteenth day of January 2004

*J. Billingsley*

JULIE BILLINGSLEY  
TEAM LEADER EXAMINATION  
SUPPORT AND SALES

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**AUSTRALIA**  
**Patents Act 1990**

**PROVISIONAL SPECIFICATION**  
**INNOVATIVE/STANDARD PATENT**

**RESISTANCE BENCH**

The invention/innovation is described  
in the following statement:

IP Australia  
18 OCT 2002  
P&S

This invention relates to a device used mainly for the purposed of body fitness and muscle gain, being an exercise tool primarily.

This device is an all-inclusive self-contained system for use in a comprehensive range of body-fitness and weight training exercises.

This invention provides an enclosed rectangular prism like space containing specialised hub-pulleys, cables, springs, fasteners, rubbers and spare hand/foot handles. Externally, it has attachable hand/foot handles, fasteners, cables, upholstered seat and upholstered adjustable back-rest, adjustable/retractable legs (the axels of which may form the internal mountings for the internal springs.)

The parts of this device that are integral to its workings are described as follows: There are at least two springs internally. These are closed springs (i.e. the coils of each individual spring are touching each other until they are pulled apart.) These springs are attached to the internal walls of the bench with mountings. The other end of the springs are attached to internal cables, which in turn, are attached to the smallest hub of a 3:1 ratio hub-pulley. There are external cables attached to the two larger hubs of this hub-pulley. There are hand/foot handles attached to these external cables.

The process by which this invention works as used by a person is described as follows: The person places the resistance bench in the appropriate place on their body to enable a particular specialised exercise to be performed by pulling on the cables to an extended or part thereof position. This process extends the springs up to and including the point of being fully opened to the extent that the device will allow. By using a 3:1 (or similar) ratio hub-pulley, a spring of very great strength can be used to allow a long extension of the cables, with a lesser extending of the springs relative to the extending of the cables. More than one spring on each internal end can be used, and utilising a fastener that can be attached to one or multiples thereof of springs allows increasing resistance to be easily applied by internal adjustment between repetitions of exercises. Rubbers can also easily be attached to the fasteners for very light high repetition workouts or to bolster a high resistance multiple spring workout.

The device may be utilised by a person to perform a range of exercises in excess of a standard weight bench (using free weights), as it does not merely sit on the floor with the option to incline half of it. It can be positioned appropriately for any exercise, anywhere on the human body. It does not rely on gravity to create resistance, and does not rely on heavy weights, it is lightweight, is less bulky and of a smaller more useable size.

This invention is portable, and very conveniently portable. It folds from a compact size into an adequately sized weight bench, with back support. It can be used merely as a seat whilst between exercises.

This device has a significant advantage in its use, over the use of free weights or hydraulics in a very important and significant respect. This is that there is an increase in resistance toward the full extension of the repetition due to the use of springs, rubbers and hub-pulleys. The human arm, leg and body are effectively stronger the nearer they are to being fully extended, and this device allows greater resistance at these crucial sections of an exercise.

This innovation/invention does the work that several other fitness machines would be needed to perform. It utilises the body of the person exercising to anchor it, whilst performing an exercise anchors the bench even more solidly into its necessary and appropriate position. This device does not allow traditional "cheating" (a common phrase used in muscle-fitness exercising), as the person exercising makes up a supporting part of the devices action. Traditional "cheating" is performed by using body momentum to counterswing the forces of resistance back to a manageable level for the person exercising — and it can lead to a less effective workout being achieved. This device is much less prone to this manipulation as the manipulation will be felt directly at the anchor point for an exercise and will be transferred as increased resistance at the cable handles; this will not create inappropriate strain on the body in the way that free weights or others can when they are used on a stationary weight bench.

To assist with understanding the invention, reference will now be made to the accompanying drawings, which show examples of the invention.

In the drawings:

FIG. 1 shows the invention from a side view perspective, whilst at rest;

FIG. 2 shows the invention from a bottom view perspective, whilst at rest;

FIG. 3 shows the invention from a bottom view perspective, whilst in operation, with all four handles 1 being attached;

FIG. 4 shows the invention from an end view perspective, whilst at rest, with legs extended and back support unextended.

Referring to FIG. 1 it can be seen that the resistance bench according to this invention comprises a metal casing being a rectangular prism 9 comprised of shaped metal, having mountings 8 fastening in place spring tubular casings 7 which may be made of a plastic composite material and hold springs 6 in place. These casings allow the springs to be extended whilst the device is in an extended phase of its operating function, as can be observed in FIG. 3.

One end of the springs 6 are attached to the same mountings 8 as the spring casings 7. The springs 6 can be attached or unattached to hook fasteners 15 which are permanently attached to metal rod 14, this allows one or more springs 6 to be engaged in the operation of the device. The metal rod 14 is attached to the internal cable 5 which is pulled by the turning of the internal/external hub 4, which is turned by the attached outer drums 3 as the external cable 2 is pulled by the foot/hand handles.

All of the internal parts mentioned are duplicated at the adjacent end of the resistance bench, allowing foot/hand handles 1 to be manipulated from each end of the resistance bench.

FIG. 4 shows how at one end of the resistance bench a foot/hand handle 1 that is not in use can be detached at attachment clips 16 and fastened to metal casing 9 with storing clips 17.

FIG. 3 shows the resistance bench at full extension, with one spring 6 in use. Several springs 6 may be used, corresponding to the number of springs 6 being coupled to the hook fasteners 15. With each added spring increased resistance will be achieved.

It will be realised that the resistance bench device as an invention is not restricted to the use of a very narrow range of materials, there being several materials that may be used, and for the fasterers, clips and mountings any number of suitable, appropriate and efficient types of design may be used.

A unique moving part of this device is the hub/pulley 3 & 4, which will require assessment as to how it is accurately named, if there is in existence something of identical or similar form and function.

It will also be realised that there are a number of ways in which the device may be bolstered to allow easily applied added resistance. One example being the adding of half-inch diameter rubbers, (of the kind used on spear-guns) to the spring 6 and extending from the mountings 8 toward and attached to the hook fasteners 15.

The claims defining the invention are as follows:

1. A device described as a resistance bench which has an internal configuration comprised of mountings, springs (closed), spring casings, specialised hub/pulleys, hook-fasteners, metal rods, cables, adjustable fasteners, rubbers (rubber bands), the axels of external legs, all contained in a cavity underneath an upholstered bench. The housing of this cavity is made of metal or other material and is a rectangular prism, with two hub/pulleys (each one extending half internally and half externally). The device has extendable legs and back support, external hand/foot handles attached to cables which are attached to the protruding half of the hub/pulleys.

2. The resistance bench described in claim 1, wherein the internal springs are attached to the internal cavity wall or the axles of the external folding legs.
3. The resistance bench described in claim 1, wherein the internal springs are of a longer, less rigid type, and may rest on additional standard pulleys and be pulled around these pulleys into an extended spring, to perform tasks in a similar manner to the standard resistance bench.
4. The resistance bench described in claim 1, wherein the use of fasteners, that are easily released and applied, are used to attach any number of springs and rubbers to the internal cable.
5. The resistance bench described in claim 1, wherein the hub/pulleys that are half-in and half-out of the structural walls of the resistance bench are attached to the internal cables, at the middle and, smallest in diameter, hubs of the hub/pulleys.
6. The resistance bench described in claim 1, wherein there is a door which opens on the adjacent side to the upholstered seat, and allows access to the adjustable workings of the interior.
7. The resistance bench described in claim 1, wherein the words "hub/pulley" have been used to describe a pulley that is unique in its specifications to the knowledge of the inventor.
8. The resistance bench described in claim 1, wherein there are two large hubs on either end of each of the hub/pulleys which are protruding half-way out of the structural side walls of the device and are attached to two cables, and this is repeated on the adjacent end of the resistance bench.
9. The resistance bench described in claim 1, wherein two spare handles are kept inside or outside the resistance bench and are attached to the wall of the resistance bench with fasteners or storage clips.
10. The resistance bench described in claim 1, wherein a hand/foot handle is attached with releasable fasteners to any/all of the external cables.
11. The resistance bench described in claim 1, wherein each external cable can be removed from the hub/pulley and attached to another external cable to lengthen it.
12. The resistance bench described in claim 1, wherein the back-support can be adjusted from its position in front of the access door to other adjustable positions.
13. The resistance bench described in claim 1, wherein the legs can be extended from their position flush with the side walls of the resistance bench into a fully extended position, and may have additional support levers extending to add support if necessary when in use solely as a seat.
14. A resistance bench substantially as herein described with reference to the accompanying drawings.

  
JASON JOHN WRIGHT MURDOCH

16 OCT 2002

# ABSTRACT

A resistance bench is disclosed. The device is a metal casing 9 being a rectangular prism enclosing and attached to spring tubular casings 7 via mountings 8, the casings 7 cover the springs 6. These springs 6 are attached to hook fasteners 15, which are attached to a metal rod 14. An internal cable 5 is permanently fixed to the metal rod 14 and the smaller hub 4 of an internal/external hub/pulley 3 & 4; the two larger drums 3 (also internal/external) of the hub/pulley 3 & 4 are attached as required to external cables 2 which are attached as required to hand/foot handles 1 with clip on hooks 16. Legs 13 can be extended to form a bench, which has a seat 10. There is a backrest 11 which can be extended via backrest supports 12. When only one hand/foot handle 1 is being used, the spare one may be attached to the end wall of the metal casing 9 via storing clips 17, and this hand/foot handle 1 may be refastened to external cable 2 by attachment clip 16.

This device can be used to perform repetitive resistance exercises by the positioning of the device at the appropriate positioning on the human body, or in a suitable positioning near the human body, whilst holding onto hand/foot handles 1 with hands or feet at either end of the device, and pulling/pushing.



FIGURE 1 SIDE VIEW (AT REST)

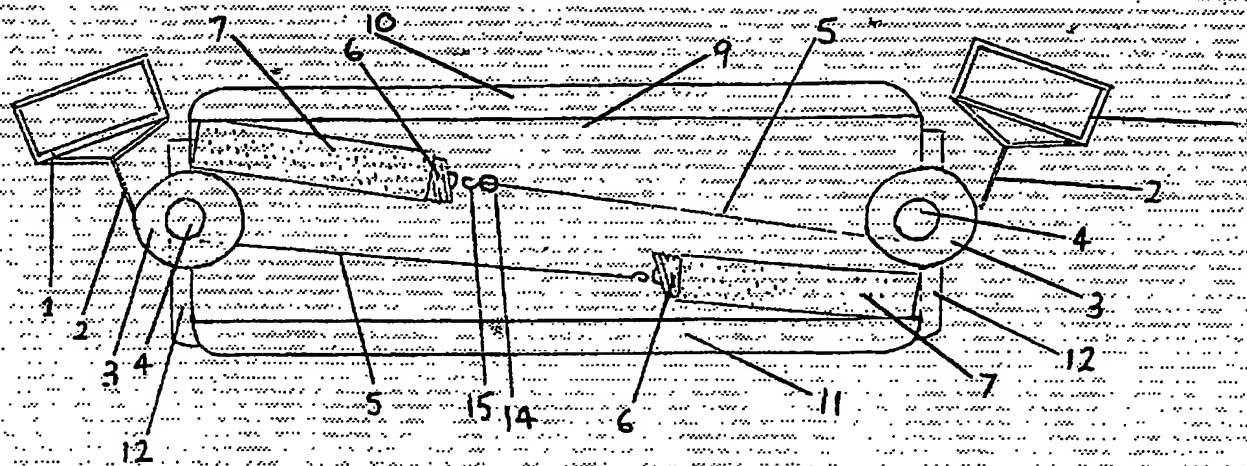


FIGURE 2 BOTTOM VIEW (AT REST)

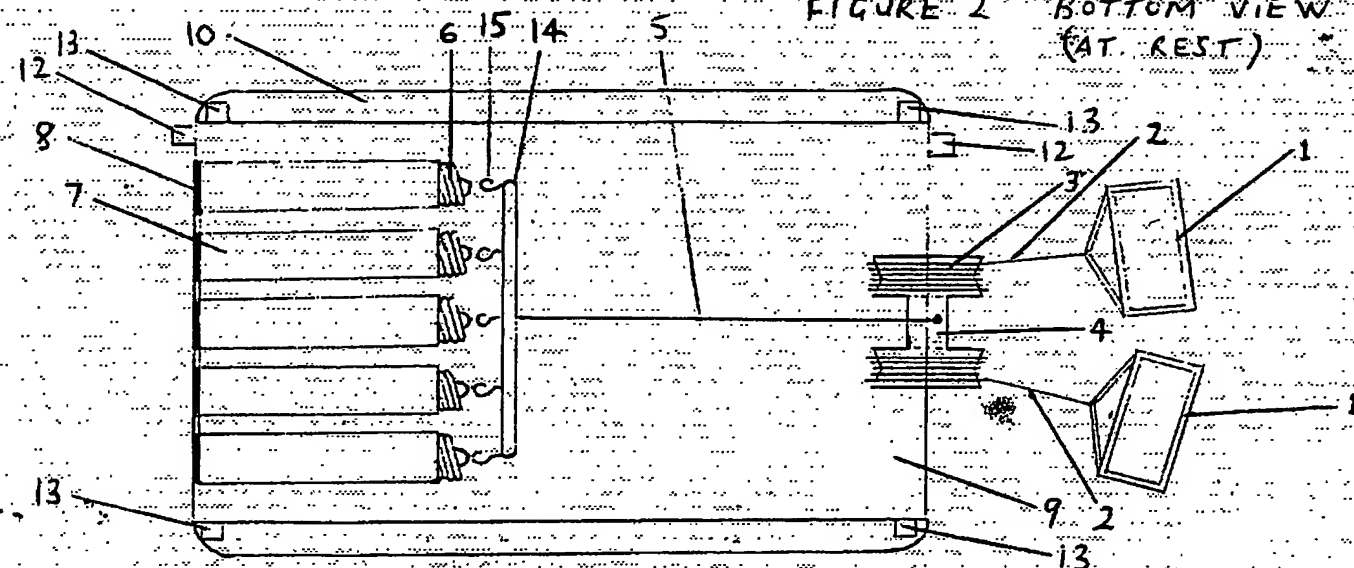
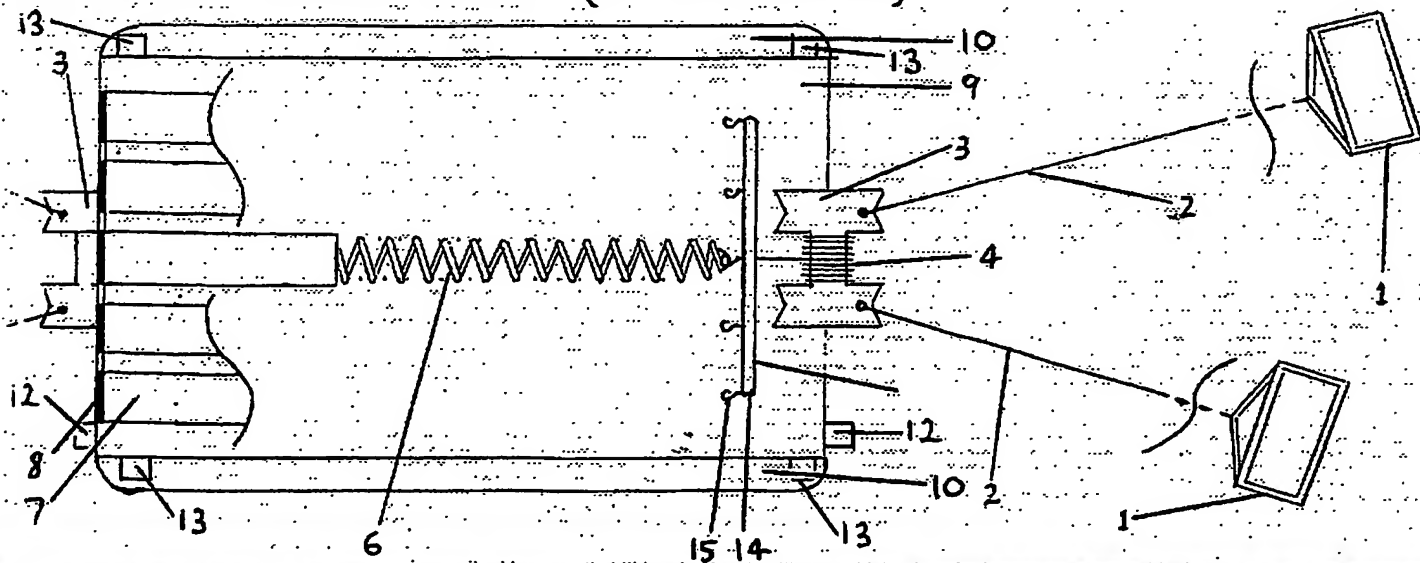
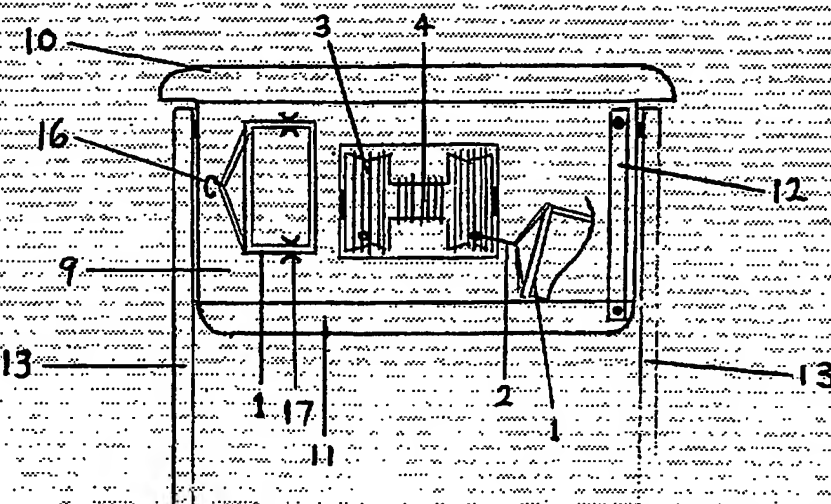


FIGURE 3 BOTTOM VIEW (IN OPERATION)



4. END VIEW (AT REST) LEGS EXTENDED





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